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Remarks

This is filed in response to the Office Action mailed April 22, 2003, citing minor formal objection to the application and rejecting the pending claims over Grouell (US 5,912,799) and Melville (US 5,617,296). The amendments above, combined with remarks below, attend to all grounds for objection to, and rejection of, the application. In view thereof, the Applicants respectfully request that the Examiner reconsider and withdraw the objections and rejections, so that this application can pass forward to issuance.

The Application Is Amended for Form

In response to ¶ 2 of the Office Action, claims 1 and 15 are amended for proper antecedent bases. Claim 21 is amended to correct a typographic error and, thereby, to ensure definiteness. With respect to the objection lodged in ¶ 1 of the Office Action, the applicant notes that the following phrase appears at the last sentence of the Specification of the instant application as filed: "In view of the foregoing, what we claim is:"

The Claimed Subject Matter Is Patently Distinct from the Art

Independent claim 1 is directed to a digital data processor chassis of the type having a plurality of slots each for slidable insertion of a respective circuit board. The improvement is characterized wherein at least one slot has first and second sets of airflow apertures disposed adjacent a location of edges of a plenum in which one or more circuit components of the respective inserted circuit board are contained. At least one of these sets has plural airflow apertures and, together, the sets are arranged to pass airflow through the plenum of that board. Moreover, at least one of the sets is arranged so that an impedance to airflow passing through the respective inserted circuit board substantially matches impedances to airflow passing through one or more other boards inserted in one or other slots in the chassis -- which other boards would otherwise have different impedances to airflow than the respective inserted circuit board.

Support for the amendments is provided, for example, in the Specification as filed at Figures 3B and 3C, as well as in the accompanying text, e.g., at pages 19-21. Thus, for example, as described on page 20, and lines 4-11:

In the illustrated embodiment, the apertures 318 are sized to present equal impedances to air flow entering and exiting the card cage 310 and to pass like volumes of air to each inserted assembly or board. In alternate embodiments, the impedances of the respective slots are adjusted in accord with requirements of the

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assemblies/boards that will reside in the slots, e.g., in accord with principles discussed above in connection with varying the impedances presented by the assemblies 100 themselves to air flows. Apertures that are or will be occupied by no assembly or board are covered. Apertures could be of different physical size without impacting the ability to adjust their impedance.

Independent claim 8 is directed to a card cage for a digital data processor having features paralleling those of the chassis described above.

Independent claim 13 is directed to a digital data processor having a chassis and slots paralleling those recited in claim 8.

Claims 2-4, 7, 9-11, and 14-21 depend from claims 1, 8 and 13 and recite further features on the digital data processor and card cage thereof.

In ¶ 6 of the Office Action, the Examiner rejects claims 1-7, 8-12, 13 and 17-21 as allegedly obvious over Grouell. That reference discloses an enclosure for disk drives in which horizontal apertures 27, 28, 29 are formed in guide bosses 31 on the sides of partitions 23, 24, 26 where the drives reside.

Unlike the claimed invention, those apertures 27, 28, 29 are not adjacent an edge of a plenum in which circuit components are contained and which the apertures provide a source and exit of airflow for the plenum. Instead, as most clearly shown in Figure 6 of Grouell, apertures 27, 28, 29 are positioned in the regions between the respective disk drives so as to provide ventilation over the surfaces of the sealed drive enclosures.

Nor, contrary to the claimed invention, are the apertures of the Grouell cabinet sized so that impedance to airflow passing through an inserted board substantially matches impedances to airflow passing through one or more other boards inserted in other slots in the chassis -- which other boards would otherwise have different impedances to airflow than the inserted board. Indeed, Grouell provides no discussion of impedance matching of airflows.

For these reasons, Grouell is not believed to anticipate or render obvious the subject matter of any of the amended pending claims.

Melville does not remedy the deficiencies of Grouell. Melville discloses circuit board covers for electronic packages and shows a chassis with a single slot adjacent each end of the covered boards. However, nowhere does Melville teach or suggest that such slots could be used for

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providing ventilation to the covered boards themselves -- much less for adjusting the impedance to airflow passing through a given board so that it substantially matches impedances passing through one or more other boards in the chassis.


To the latter end, Melville also fails to teach or suggest that plural apertures could be provided in place of the single slot shown at the end of each covered board. Indeed, any such plurality of apertures disclosed by Melville are provided only on the covered boards themselves, which disclosure runs counter to the capability of Applicants' claimed apparatus to match or adjust airflows via the card cage itself. More generally, Melville fails to provide any suggestions that the solitary slots provided at each end of the card cage -- or any other slots or apertures disclosed in the application -- could be used for ventilation.

For these reasons, among others, the combined teachings of Grouell and Melville are not believed to render obvious the subject matter of claims 14-16.

Conclusion

This responds in full to the Office Action mail April 22, 2003. The application is amended for form and, thereby, to overcome all grounds for formal objection. The claims are amended to clarify, still further, patentability of the subject matter over the cited Grouell and Melville patents. In view hereof, the Applicants respectfully request that the Examiner reconsider and withdraw all objections to, and rejections of, the application, so that it may pass forward to issuance.

Respectfully submitted,
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JUL 22 2003

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